DOCUMENT RESUME

ED 143 966 CG 011 754

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TITLE Cooperative Skill Development in Equal Status Small Groups.
PUB DATE [77]
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association [New York, N.Y., April 4-8, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Behavioral Science Research; Behavior Change; Conflict Resolution; *Group Activities; *Group Dynamics; *Interaction Process Analysis; Junior High Schools; Learning Theories; *Skill Development; *Teaching Techniques
IDENTIFIERS *Competition

ABSTRACT

The objective of the study was to (1) systematically study the process by which small group cooperation develops and to (2) produce guidelines that will be useful to teachers. The sample consisted of 84 seventh grade boys and girls of middle class families. Three randomly assigned samples (rotating, solid, and control) comprised the experimental groups. All three samples were administered a criterion activity, and the rotating and solid samples were administered intervention activities. The criterion activity consisted of an adapted version of the Madson cooperation board designed to promote both cooperative and competitive behavior among small groups of four. The intervention activities consisted of the "NASA Lost on the Moon" and "Decision Grid" in which cooperative skills and processes were examined in the small group setting. The results showed a significant gain in non-competitive gains for the rotating and solid samples (t Test) while the control sample showed a slight decrease. The intervention activities demonstrated the value of group decisions over individual decisions. Conclusions are that (1) there are certain identifiable conditions under which group members will act cooperatively and (2) skills training is a viable way of teaching cooperative interaction in small groups. (Author)

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COOPERATIVE SKILL DEVELOPMENT IN EQUAL STATUS SMALL GROUPS

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Introduction and Theoretical Framework

The use of grouping was first advocated by John Dewey who believed that the child's mind grew through meanings acquired in social interchange. He asserted that methods of scientific investigation and social cooperation were the constants of curriculum; subject matter was the variable (1899).

While a large body of literature has been gathered related to cooperation in small groups, little work exists however, which focuses on the conditions under which intergroup cooperation is initiated and maintained.

In the absence of a clear understanding of the parameters of cooperation, the success or failure of a class activity can be attributed to trial and error. The objective of the study was to (1) systematically study the process by which small group cooperation develops and to (2) produce guidelines that will be useful to teachers.

Many social scientists have expressed the belief that cooperative behavior is learned. Based on her anthropological research, Mead has stated that "competitive and cooperative behavior on the part of individual members of a society is fundamentally conditioned by the total social emphasis of that society" (1937). In separate cross cultural studies Doob (1952) and Bronfenbrenner (1970) have reinforced her findings, concluding that both competition and cooperation are learned behaviors. The findings of Shapira and Madsen indicate that there is variability even among children within a single society (1969).

In addition to the important assertion that cooperative behavior is learned the literature reveals several elements that are critical to the concept of cooperation. These are: task structure, goal dimensions, affective and product outcomes, and efficiency. Much of the research on small group processes has compared the outcomes of cooperative interaction relative to competitive interaction. Deutsch (1949) established a major landmark in

defining competition and cooperation in terms of interdependence with respect to the goal and reward structure of the task. He found that subjects in a cooperative endeavor showed less hostility toward their fellow group members, enjoyed the task more, displayed a greater motivation, and completed the task more efficiently than those in a competitive situation. Raven and Eachus (1963) support Deutsch's findings. Other studies, however, agree with only some aspects of Deutsch's findings. Julian and Perry found that the groups and individual competitive conditions created more motivation among group members than the purely cooperative conditions, as well as greater productivity (1965). The beneficial outcomes of cooperation are convincing. Until fairly recently, however, little work has been done on specifying conditions relevant to the initiation of cooperation. Some of these theoretical notions have been outlined by Morton Deutsch (1962). One of the conditions contributing to cooperative interaction is the subject's ability to perceive the completion of the goal as being interrelated with another's participation in that completion. This requires trust among group members as well as an ability to bargain for "conflict resolution."

Another group of studies considered the variability of children's behavior found in cross-cultural and subcultural comparisons as a result of environmental milieu. Goodman found four-year old Negro children to be more competitive than white children (1952). Studying an older group of children 7 to 11 year-olds), Sampson and Kardush found the opposite results (1965). Other studies compared inter-ratial differences controlling for SES and urban-rural and social class variations among Mexican children (Madsen, 1967). Even though the findings of these studies are inconsistent they suggest that children learn to define task situations as ones in which skills are more important than others.

Shapira and Madsen found that when Israeli children from urban areas and Kibbutz were presented with rules that defined the situation as cooperative all the children interacted cooperatively. To be sure, the children from the kibbutz cooperated to a greater extent than the urban children. In other words, (1) the structure of the task induced cooperative interaction, and (2) knowing how to cooperate increases cooperative interaction. When the rules were changed so that the situation was defined as competitive, the urban children reverted to competitive interaction, while many of the kibbutz children did not. This last point can be interpreted in light of the results of a second experiment that they reported. When no rules were offered, the kibbutz children offered more non-competitive responses than the urban children. Again, this finding suggests that the urban children were lacking skills necessary for cooperative interaction.

A series of studies reported by Locke and Breer (1965) provides two more pieces of the theoretical framework for cooperation. They suggest that the more successful the group is as a group, the greater the group's solidarity. The present study predicted that group solidarity is a necessary condition for the initiation of cooperative interaction groups. Secondly, their work suggests that the way of teaching cooperative interaction skills is through task experience.

In the almost three-quarters of a century that behavioral scientists have studied cooperative processes in groups, only a few of the regularities have been uncovered. Most of the work has focused on the conditions which evoke cooperative interaction. This approach is of limited use for both the researcher and the classroom teacher, for not only conditions which evoke but maintain and sustain the process must be systematically investigated.

Such thoughts give rise to the questions addressed in the present study: (1) under what conditions will group members interact cooperatively, and, (2) is skills training a viable way of teaching cooperative interaction in small groups. Both questions deal with definitional constraints.

Cooperation as a concept based on learning theory is defined by Kelley and Thibaut (1969) as a structure in which the individual's rewards are directly proportional to the quality of the group work. While Deutsch (1962) emphasizes that an individual will tend to facilitate the actions of others when he perceives that their actions will enhance his chances of successful goal attainment. In the present experiment the definition of cooperation included the idea that an individual can obtain his goal only if the others with whom he is linked can obtain their goals. Any movement by one individual toward a goal increases the possibility of others reaching that goal.

Cooperative skill learning involves (D. W. Johnson, 1972): (1) self-disclosing to and building trust with others, (2) communicating effectively with others, (3) influencing and supporting others, and (4) managing conflicts constructively. The present experiment included activities in which group efforts were capitalized on, individual contributions assisted members in moving closer to common goals.

Group solidarity is operationally defined best by Bales' early work: "The obligation to identify one's self cognitively, affectively and conatively with the others, to perceive one's self as a part of a larger whole, to feel the other's concerns as one's own, to share the other's fate; and the right to expect these attitudes and actions from the others" (Bales, 1950).

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METHODOLOGY

Subjects

The sample consisted of 84 seventh grade boys and girls from middle class homes. Control variables included race and social economic status. Patrons of the school district fit the criteria generally associated with middle class status. Occupations include predominantly professional status; income levels are generally above the average for the entire community. Subjects were randomly assigned by their normal grade/class to one of three experimental conditions (control sample, rotating sample, solid sample). The study took place in a natural setting.

Apparatus and Activities

The apparatus consisted of a criterion activity and intervention activities. An adaptation of the Madsen Cooperation Board was utilized as a criterion measuring instrument.

The cooperation board consists of a board 18 inches square with an eyelet fastened to each of the four corners. Strings strung through each eyelet are connected to a metal weight which serves as a holder for a ball-point pen filler. A sheet of paper is placed on the board for each trial, thus recording the movement of the pen as the subjects pull their strings. Circles are drawn on the paper at each of the four corners. In the first trial subjects are instructed to pass the pen through each of the four circles. Because the string passes through the eyelets, only an individual child can pull the pen toward himself. In order to draw a line through all the circles, the children must work together. While the Ss are playing the game the observer notes the number of times the Ss complete the task in the 30 second time period.

The second set of rules introduce a competitive aspect to the cooperation game. In this phase Ss were each assigned a circle and instructed that the first circle crossed would be awarded a prize. Once again the experiment was timed and results recorded.

Scoring was based on the criteria, stating that any line which passed through an individual circle without deviating more than one inch from the direct path from the center starting point to the circle, and which did not reverse directions within those limits, was considered a non-competitive response. Lines which violated these criteria were considered as indicators of competitiveness since they indicated children were pulling against each other.

Intervention activities consisted of two equal status task oriented games which required group cooperation for successful completion. One activity, the "NASA Lost on the Moon Game" (Hall, 1971) is norm referenced and provides a means of examining the idea that group efforts produce higher quality results than do individual efforts. In this decision exercise astronauts have crash-landed on the moon, and their mission is to reach the mother ship 200 miles away. The task is to first individually and then collectively, rank 15 items according to how useful each would be to the lunar mission.

The processes involved in the development of cooperative skills were examined through the use of the Decision Grid (Singleton, Nelson et al., 1976). This activity requires participants to make individual decisions regarding community development programs. Once the individual decisions are made participants are asked to compare decisions and using a forced choice format, decide as a group on the value of the community program.

The Decision Grid consists of a matrix containing twenty cells; five horizontal and four vertical categories. The vertical cells are labeled the

same as the individual ranking forms: strongly agree, somewhat agree, neutral, somewhat disagree and strongly disagree. Each S is assigned one horizontal row of five cells over which he has complete control. The designation of rows is immaterial since row one is no more powerful than row four. Such individual control, however, provides each participant with the power to accept or reject the use of any cell in any of his five cells across the grid. The S's are shown a series of cards depicting various community services or functions which S's are asked to assign to one of the cells on the grid. S's are told to imagine they are going to an unpopulated part of the earth, similar in climate to their own, to establish a new community and they are asked to decide which parts of an earth community they hope to retain.

Each depiction has to be placed in a different category and all the cells must be filled by group consensus in order to achieve successful completion of the task.

As each depiction is disclosed participants decide individually and then collectively where to place it on the grid depending on the group consensus of strong positive feelings or strong negative feelings for the depicted community item. The cards are arranged randomly and blindly. Each depiction is disclosed separately and placed on the grid before the next depiction is seen by the participants. Three basic rules govern the action; (1) each depiction must be placed before the next one is revealed; (2) no depiction may be placed in any category without the permission of the individual who controls that category; (3) no depiction may be moved laterally in any row without group concensus.

Decision Grid

Participant	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
#1					
#2					
#3					
#4					

PROCEDURE

S's were divided into three samples according to the class sections they normally met with on a daily basis. A control sample was established and administered the criterion portion of the experiment on a pre/post basis only. The intervention phase was eliminated for this sample.

A sample of some permanence (solids) was established in another seventh grade section and was administered both the criterion and intervention phases. The S's in the solid sample remained in the same small groups of four which were originally randomly selected, throughout the experiment.

Another seventh grade section was termed a rotating sample in which the S's were randomly assigned to new small groups of four following each exercise throughout the experiment. The rotating sample was administered both the criterion and intervention phases.

Phase I

The adapted form of the Madsen Cooperation Board was administered on a pretest criterion basis. Three trials were conducted in which S's were to cross the circles as many times as possible. The idea here was to examine if there was any pre-existing tendency to behave competitively or cooperatively. Three trials were conducted preceded by the following instructions:

> As you can see, when we pull the strings, the pen draws lines. In this game we are going to pull the strings and draw lines, but in a special way. The aim of the game is for you to draw a line over the four circles within 30 seconds. You should complete the task as many times as possible.

At the end of 30 seconds the S's were stopped and the observer announced and recorded the number of circles the S's had crossed. The same procedure was used for three trials.

After the initial three trials were completed, the following instructions were read to the groups:

> As you see, the circles are now at the corners of the page. This time the game is somewhat different so listen carefully. Again, everyone has his own circle. (Observer writes each child's name in the circle closest to him.) Now, when the pen draws a line across the circle of one of the students, that student will get a prize. At this point we shall stop the game and return the pen to the center of the page and begin again. We will do this four times without charging the page. Are there any questions?

Each observer timed and recorded the data for each small group. Prizes were awarded to the S whose circle was crossed first. At the conclusion of the game all the S's were given prizes (candy) which provided strong reinforcement as demonstrated by the eagerness with which the S's involved themselves in the task.

Phase II

Both the rotating and solid samples were introduced to the two intervention activities and instructed in the rules. S's were first asked to individually rank order the fifteen items in the "NASA Lost on the Moon" game. Following the completion of individual rankings, S's were placed in groups of four and asked to compile one group list. The S's in the rotating sample were randomly assigned to new groups of four following Phase I and following the first intervention activity. The S's in the solid sample remained in their originally random assigned small group of four throughout all phases of the experiment.

The second intervention activity, the "Decision Grid" was introduced and the S's were asked to individually categorize twenty community oriented items in terms of strongly support, somewhat support, neutral, somewhat against and strongly against.

Once the S's completed their individual ranking forms they were placed in small groups of four (rotating sample was randomly placed and solid sample remained in same small groups) and the Decision Grid was completed by each small group.

Phase III

The criterion activities were administered on a posttest basis to all three samples.

Three trials were conducted with the cooperation portion of the adapted version of the Madsen Cooperation Board. Upon completion of the three trials another four trials were conducted in which the circles were moved to the corners directly in front of the S's and the number of positive efforts toward decreasing competition were noted.

RESULTS

Criterion Pre/Post Assessment

Although there are statistical problems with analyzing gains, the t test does show the amount of change.

The mean non-competitive gains for the rotating and solid samples showed an increase from the pre/post assessment, ($t_{solid} = 6.71$, $p < .01$ and $t_{rotate} = 2.24$, $p < .05$), while the control sample showed a slight decrease.

Mean Non-Competitive Responses for Three Groups

Group	Mean Score
Solid	3.0
Rotating	2.0
Control	- .6

This would indicate that as a result of the intervention activities experimental S's cooperated to a greater extent in accomplishing tasks than did the control S's.

The solid sample mean increase was 1½ times greater than the rotating sample. This would indicate that small groups which function together through a series of activities have a greater potential for developing skill proficiency than groups which are short lived.

Intervention Activities:

Both the "NASA Lost on the Moon" and "Decision Grid" activities showed a significant increase in group decision making over individual decision making. Individual error point scores averaged 44.6 (error points were the absolute difference between the individual score and the norm) while the group error point scores averaged 27.2. Or, the group decision making increased the scores by an average of 17.4 points. In every instance the S's were able to improve their scores when placed in groups.

DISCUSSION

The hypotheses that (a) there are certain identifiable conditions under which group members will act cooperatively and (b) skills training is a viable way of teaching cooperative interaction in small groups were confirmed. When the intervention activities were introduced in phase II, both the rotating and

the solid samples demonstrated a determination to work cooperatively toward the goals established by each activity. The increase in mean non-competitive responses for both the rotating and solid samples during the phase III criterion post assessment indicates the acquisition of the cooperative skills introduced during phase II. The non increase (in fact, a slight decrease) in the non-competitive responses for the control sample which did not experience the intervention activities indicates a lack of cooperative skills acquisition. The slight difference (not significant) between the non-competitive scores of the rotating sample and the solid sample indicates a possibility of greater skill acquisition with small groups maintaining some memberships for extended periods of time.

Even with these small samples we found a significant difference in predicted direction. A larger sample would have given greater statistical power and consequently, results in the predicted direction may have been significantly greater. Our expectation is that the difference between the rotating sample and control sample would be statistically significant.

Observations

Although we anticipated cooperation and lack of cooperation, none of the observers were prepared for the near hostility which was manifested during the criterion portion of the experiment. The competitive tension was clearly evidenced during the cooperation board by the snapping of the four pound test line as pressure was exerted by the students. There were instances of member withdrawal from group activities and group breakdown as members called each other names and made strong accusations. However, during the post assessment when the students were again asked to work with the cooperation board, the decline in group breakdown was obvious. Students had no knowledge of the

activity before the boards were distributed and the general instructions included an admonition to remain silent and not communicate with the other members of the group until the starting signal was given.

We were impressed with the fairly high level of constructive noise during all phases of the experience. We use the expression constructive noise as we observed the students becoming increasingly submerged in the task at hand, the noise level rose proportionately. Once the students clearly understood the task and recognized the goal as both achievable (realistic), and worth their effort, they became totally committed to helping others attain the goal. It was interesting to note the various phases group members went through in developing cohesion. Usually, there occurred some form of bullying and verbal abuse followed in succession by ostracism and finally a helping relationship. Students spent considerable time debating, discussing and genuinely being involved in clarifying the various tasks and goals. For, once some students realized the futility of employing the traditional standard modes of convincing recalcitrant students to conform they resorted to cooperative attempts.

In general we found that students spent considerable time breaking out of traditional competitive modes before entering a framework of cooperation. However, once the tasks were clearly understood including the limits, students immediately set about to help one another. There were, however, instances which affected the group's progress both positively and negatively.

In some instances students were lacking in speaking and/or listening skills which to varying degrees impeded the progress of the group. Much time was spent in several groups attempting to communicate meanings to one another. Listening and speaking skill proficiency are absolute necessities for group solidarity.

It was observed that the students had a fairly high degree of rapport with each other and a very high rapport with their teacher. Both factors played important roles in determining the level of cooperation acquired by each small group. Even though the students were very competitive, they were generally able to relate to one another in a positive sense throughout the experiment. The experiment also served to identify those who had difficulty establishing and sustaining meaningful helping relationships with peers.

It appears then, that when certain conditions are established group members will act cooperatively. Conditions such as, clearly stated and understood tasks; ample opportunity to openly discuss, debate and probe the issues within the group; tasks which require a high degree of participant involvement all contribute to rewarding experiences. Further, it appears that skills training is a viable way of teaching cooperative interaction. The skills utilized in equal status cooperative groups include listening skills, speaking skills, reading skills, and decision-making skills. It is important to note that all of the named skills can be introduced and reinforced positively through equal status small groups.

References

1. Bales, R. F. Interaction Process Analysis. New York: Addison-Wesley, 1950.

2. Bronfenbrenner, U. Two Worlds of Childhood: U.S. and U.S.S.R. New York: Russel Sage Foundation, 1970.

3. Deutsch, M. "Cooperation and Trust: Some Theoretical Notes" in M. R. Jones (ed.), Nebraska Symposium on Motivation. Lincoln, Nebraska: University of Nebraska Press, 1962, pp. 275-316.

4. Deutsch, M. "A Theory of Cooperation and Competition," Human Relations, 2: pp. 129-152, 1949.

5. Dewey, J. The School and Society, Chapter 1 (Tyack ed.); Turning Points in American Educational History, Blaisdell Publishing Co., Waltham, Mass., 1967.

6. Doob, L. W. Social Psychology. New York: Henry Holt, 1952.

7. Goodman, M. E. Race Awareness in Young Children. Addison-Wesley, Cambridge, Mass., 1952.

8. Hall, J. "Decisions, Decisions, Decisions," Psychology Today, Vol. 5, No. 6, Nov., 1971, pp. 51-58.

9. Johnson, D. W. Reaching Out: Interpersonal Effectiveness and Self Actualization, Englewood Cliffs, N.J.: Prentice-Hall, 1972.

10. Julian, W. and Perry, F. A. "Cooperation Contrasted with Intra-Group and Inter-Group Competition," Sociometry, Vol. 30, No. 1, March, 1967, pp. 79-90.

11. Kelley, H. H. and Thibaut, J. W. "Group Problem Solving. In G. Lindzey and E. Aronson (Eds.), The Handbook of Social Psychology, Vol. 4, Reading, Massachusetts: Addison-Wesley Publishing Company, 1969.

12. Locke, E. A. and Breer, P. C. Task Experience as a Source of Attitudes. Howeward, Illinois: The Dorsey Press, 1965.

13. Madsen, M. C. "Cooperative and Competitive Motivation of Children in Three Mexican Subcultures," Psychological Reports, 20: 1307-20, 1967.

14. Mead, M. Cooperation and Competition Among Primitive People. New York: McGraw-Hill, 1937.

15. Raven, B. H. and Eachus, H. T. "Cooperation and Competition in Means Interdependent Triads," Journal of Abnormal and Social Psychology, Vol. 67, No. 4, 307-316, 1963.

16. Sawyer, E. E. and Kardush, M. "Age, Sex, Class, and Race Differences in Response to a Two-Person Non-Zero-Sum Game," Journal of Conflict Resolution, 9: 212-220, 1965.

17. Shapira, A. and Madsen, M. C. "Cooperative and Competitive Behavior of Kubbutz and Urban Children in Israel," Child Development, 40: 609-617, 1969.

18. Singleton, H. W. and Nelson, M. R. "Small Group Decision Making for Social Action." In D. Kurfman (Ed.), Decision Making Skill in Social Studies, Washington, D.C.: National Council for the Social Studies, 1977.